

ABSTRACT OF THE DISCLOSURE

A synthetic gas manufacturing plant includes a reformer having a reaction tube, a combustion radiation unit arranged around the reaction tube to heat the reaction tube, and a convection unit communicating with the combustion radiation unit, a source gas supply passageway to supply a natural gas to the reformer, a steam supply passageway to supply steam to the source gas supply passageway, a carbon dioxide recovery apparatus to which a the total amount of combustion exhaust gas flowing through the convection unit of the reformer is supplied, and which recovers carbon dioxide from the combustion exhaust gas, a compressor to compress the recovered carbon dioxide, and a return passageway to supply part or the whole all of the compressed carbon dioxide from the compressor to the source gas supply passageway.